

Appendix D  
Final CHART Assessment for the  
South-Central California Coast (SCCC) Steelhead ESU

**ESU Description**

The SCCC Steelhead ESU was listed as a threatened species in 1997 (62 FR 43937). The ESU includes all naturally spawned populations of steelhead in coastal river basins from the Pajaro River southward to, but not including, the Santa Maria River. The major watersheds occupied by naturally spawning fish in this ESU include the Pajaro River, Salinas River, Carmel River, and numerous smaller rivers and stream along the Big Sur coast and southward. Most of the rivers in this ESU drain the Santa Lucia Range, the southernmost unit of the California Coast Ranges and only winter steelhead are found in this ESU. The climate is drier and warmer than in the north which is reflected in vegetational changes from coniferous forest to chapparral and coastal scrub. The mouths of many rivers and streams in this ESU are seasonally closed by sand berms that form during periods of low flow in the summer. Based on an updated status review (NMFS 2003a), NMFS proposed that the ESU remain listed as a threatened species and that resident O. mykiss co-occurring with anadromous populations below impassible barriers (both natural and man-made) be included in the ESU (69 FR 33102; June 14, 2004). NMFS recently determined that a 6-month extension in making a final listing determination for this and all other west coast steelhead/O. mykiss ESUs was warranted (70 FR 37219; June 28, 2005). A Technical Recovery Team has been formed and is in the process of identifying the historical and extant independent population structure of this ESU and associated population viability criteria.

**CHART Area Assessments**

The preliminary CHART assessment for this ESU (NMFS 2004b) was prepared to support our December 10, 2004, critical habitat proposal (69 FR 71880). No new information regarding fish distribution, habitat use, or watershed conservation ratings for this ESU was received during the public comment period. The CHART reaffirmed its preliminary findings for this ESU and determined that no changes were required.

The final CHART assessment for this ESU considered 8 CALWATER Hydrologic Units (HUs) containing 30 occupied CALWATER HSAs (Figures D1 and D2). One of the 30 occupied HSA watersheds was Morro Bay which serves as rearing and migration habitat

for some populations in this ESU. The HSAs were chosen as freshwater critical habitat units because they present a convenient and systematic way to organize the CHART's watershed assessments for this ESU. Information presented below for individual HUs within the range of the ESU (size, counties, total stream miles, occupied stream miles, and habitat use ) were generated from GIS data sets compiled by the NMFS Southwest Region and can be found in Table D1.

#### Unit 1. Pajaro River Subbasin (HU 3305)

The Pajaro River HU is located in the northern part of the ESU and includes the Pajaro River and its tributaries. The HU encompasses approximately 1,311 mi<sup>2</sup> and occurs within portions of Fresno, Merced, Monterey, San Benito, Santa Clara, Santa Cruz, and Stanislaus Counties, but the vast majority of the unit occurs in San Benito and Santa Clara Counties. The HU contains 5 HSAs (although a portion of one HSA is located outside the boundary of the ESU), all of which are occupied, and approximately 1,861 miles of streams (at 1:100,000 hydrography). Fish distribution and habitat use data compiled by NMFS biologists identify approximately 296 miles of occupied riverine habitat in the 5 occupied HSAs (Table D1). The CHART concluded that these occupied HSAs contained one or more PCEs (i.e. spawning, rearing, or migratory habitat) and identified several management activities that may affect the PCEs. Table D2 summarizes the total miles of occupied riverine habitat for each HSA watershed that contains spawning/rearing, rearing/migration, or migration PCEs, as well as management activities that may affect the PCEs in each HSA. Map D1 depicts the specific areas in this HU that are occupied by the ESU and were considered for critical habitat designation. The CHART also concluded that inaccessible habitat above Uvas Dam in Uvas Creek (a tributary to the Pajaro River) may be essential to the conservation of the ESU because: (1) it supports steelhead native to the Pajaro River watershed and contains habitat suitable for spawning and rearing, and (2) efforts are underway to implement a long-standing agreement between the South Santa Clara Valley Water Conservation District and the State of California to provide fish passage above this dam.

#### Unit 2. Bolsa Neuva Subbasin (HU 3306)

The Bolsa Neuva HU is a small watershed unit located in the northern part of the ESU which includes Elkhorn Slough. The HU encompasses approximately 51 mi<sup>2</sup> and occurs Monterey and San Benito Counties. The HU contains 1 HSA which is not considered occupied and approximately 63 miles of streams (at 1:100,000 hydrography). Fish

distribution and habitat use data compiled by NMFS biologists indicate that the HU is not occupied (Table D1). Map D2 depicts the this HU. The CHART did not identify any unoccupied habitat in this subbasin that may be essential for the conservation of the ESU.

#### Unit 3. Carmel River Subbasin (HU 3307)

The Carmel River HU is located in the northwestern portion of the ESU and includes the Carmel River watershed. The HU encompasses approximately 256 mi<sup>2</sup> and occurs entirely within Monterey County. The HU contains only one HSA which is occupied and approximately 404 miles of streams (at 1:100,000 hydrography). Fish distribution and habitat use data compiled by NMFS biologists identify approximately 146 miles of occupied riverine habitat in the single occupied HSA (Table D1). The CHART concluded that these occupied areas contained one or more PCEs (i.e. spawning, rearing, or migratory habitat) and identified management activities that may affect the PCEs. Table D2 summarizes the total miles of occupied riverine habitat identified for each HSA watershed that contains spawning/rearing, rearing/migration, or migration PCEs, as well as management activities that may affect the PCEs in each HSA. Map D3 depicts the specific areas in this HU that are occupied by the ESU and were considered for critical habitat designation. The CHART did not identify any unoccupied habitat in this subbasin that may be essential for the conservation of the ESU.

#### Unit 4. Santa Lucia Subbasin (HU 3309)

The Santa Lucia HU is located along the Big Sur coastal area and includes the Big Sur River and Little Sur River watersheds. The HU encompasses approximately 302 mi<sup>2</sup> and occurs entirely within Monterey County. This HU contains only a single HSA which is occupied and approximately 442 miles of streams (at 1:100,000 hydrography). Fish distribution and habitat use data compiled by NMFS biologists identify approximately 81 miles of occupied riverine/estuarine habitat in this single occupied HSA (Table D1). The CHART concluded that these occupied areas contained one or more PCEs (i.e. spawning, rearing, or migratory habitat) and identified management activities that may affect the PCEs. Table D2 summarizes the total miles of occupied riverine habitat identified for each HSA watershed that contains spawning/rearing, rearing/migration, or migration PCEs, as well as management activities that may affect the PCEs in the occupied HSA. Map D4 depicts the specific areas in this HU that are occupied by the ESU and were considered for critical habitat designation. The team did not identify any unoccupied habitat in this subbasin that may be essential for the conservation of the ESU.

#### Unit 5. Salinas Subbasin (HU 3309)

The Salinas HU is located in the north-central portion of the ESU and includes the Salinas River watershed which is the largest in the ESU. This is the largest HU in the ESU and encompasses approximately 3,527 mi<sup>2</sup> primarily in Monterey and San Luis Obispo Counties. The HU contains 12 HSAs, 7 of which are occupied, and approximately 4,727 miles of streams (at 1:100,000 hydrography). Fish distribution and habitat use data compiled by NMFS biologists identify approximately 375 miles of occupied riverine/estuarine habitat in the 7 occupied HSAs (Table D1). The CHART concluded that these occupied areas contained one or more PCEs (i.e. spawning, rearing, or migratory habitat) and identified management activities that may affect the PCEs. Table D2 summarizes the total miles of occupied riverine habitat identified for each HSA watershed that contain spawning/rearing, rearing/migration, or migration PCEs, as well as management activities that may affect the PCEs in the occupied HSA. Map D5 depicts the specific areas in this HU that are occupied by the ESU and were considered for critical habitat designation. The CHART did not identify any unoccupied habitat in this subbasin that may be essential for the conservation of the ESU.

#### Unit 6. Estero Bay Subbasin HU (3310)

The Estero Bay HU is located along the southern coast of the ESU and includes a large number of small coastal streams including Arroyo De La Cruz, San Simeon Creek, Santa Rosa Creek, Morro Creek, San Luis Obispo Creek, and Arroyo Grande Creek. The HU encompasses approximately 751 mi<sup>2</sup> and occurs primarily in San Luis Obispo County. The HU contains 17 HSAs, 15 of which are occupied, and approximately 940 miles of streams (at 1:100,000 hydrography). One of these occupied watersheds is Morro Bay into which the Morro Creek and Chorro Creek watersheds drain. Morro Bay encompasses an area of approximately 3mi<sup>2</sup> and is an important rearing and migration habitat for populations occupying watersheds draining into the Bay. Fish distribution and habitat use data compiled by NMFS biologists identify approximately 353 miles of occupied riverine habitat in the 15 occupied HSAs (Table D1). The CHART concluded that these occupied areas contained one or more PCEs (i.e. spawning, rearing, or migratory habitat) and identified management activities that may affect the PCEs. Table D2 summarizes the total miles of occupied riverine habitat identified for each HSA watershed that contains spawning/rearing, rearing/migration, or migration PCEs, as well as management activities that may affect the PCEs in the occupied HSA. Map D6 depicts the specific areas in this HU that are occupied by the ESU and were considered for critical habitat designation. The CHART did not identify any unoccupied habitat in

this subbasin that may be essential for the conservation of the ESU.

#### Units 7 (Santa Maria Subbasin - HU 3312) and 8 (Estrella Subbasin - HU 3317)

Portions of the Santa Maria and Estrella HUs are within the geographic range of this ESU, but do not contain occupied habitat. The Santa Maria HU includes a single HSA (Guadalupe; 331210) which is divided by the ESU boundary. All occupied habitat within this HSA occurs within the range of the Southern California steelhead ESU. The Estrella HU contains a single HSA (Estrella River; 331700) which is unoccupied.

### **Final CHART Conservation Value Rating**

#### *Freshwater Areas*

After reviewing the best available scientific data regarding critical habitat for this ESU, the CHART concluded that most of the occupied HSAs were of high or medium conservation value to the ESU. Of the 30 occupied HSAs that were evaluated, 13 were rated as having high conservation value, 11 were rated as having medium conservation value, and 6 were rated as having low conservation value. Table D3 summarizes the CHART's PCE/watershed scores and final conservation value ratings (i.e. low, medium or high). Figure D7 shows the overall spatial distribution of conservation ratings for occupied HSAs within the range of the ESU.

#### *Marine Areas*

NMFS determined that marine areas did not warrant consideration as critical habitat for this ESU.

### **References and Sources of Information**

NMFS 2003a. Updated Status of Federally Listed ESUs of West Coast Salmon and Steelhead. West Coast Salmon Biological Review Team; Northwest Fisheries Science Center and Southwest Fisheries Science Center. July 2003.

NMFS 2004b. Draft Findings of NMFS's Critical Habitat Development and Review Teams (CHARTs) for 7 Salmon and O. mykiss ESUs in California. Main Report and 7 Appendices. Prepared by NMFS' Southwest Region.

### **Federal Register Notices**

62 FR 43937 - South-Central California Coast Steelhead Listing Determination (1997)

69 FR 33102 - Proposed Listing Determinations for 27 West Coast Salmon and Steelhead ESUs (June 2004)

70 FR 37219 - 6-Month Extension of the Final Listing Determinations for Ten ESUs of  
West Coast O. mykiss.

Table D1. South-central California Coast Steelhead ESU: Occupancy, miles of occupied habitat use, and geographic area information by Hydrologic Unit and Hydrologic Subarea

HU NUMBER	HU NAME	Major Stream/ Watershed in HU	HU Occupied (Y or N)	Acres in HU	Square Miles in HU	Stream Miles (1:100K) in HU	Occupied Stream Miles	Occupied Stream Miles (Spawning)	Occupied Stream Miles (Rearing)	Occupied Stream Miles (Migration)	County/HU Falls within	Acres of County in HU	Square Miles of County in HU	Percent of HU by County	HSA NUMBER	HSA NAME	HSA Occupied (Y or N)	Acres in HSA	Square Miles in HSA	Stream Miles (1:100K) in HSA
3305	Pajaro River	Pajaro River	Y	838,758	1,311	1,861	296	143	97	258	Fresno Merced Monterey San Benito Santa Clara Santa Cruz* Stanislaus	365 91 11,311 524,169 235,336 67,454 32	1 0 18 819 368 105 0	0% 0% 1% 62% 28% 8% 0%	330510*	Watsonville	Y	79,519	124	140
3306	Bolsa Nueva	Elkhorn Slough	N	32,634	51	63	0	0	0	0	San Benito Monterey	5,926 26,708	9 42	18% 82%	330600	Bolsa Nueva	N	32,634	51	63
3307	Carmel River	Carmel River	Y	163,572	256	404	146	88	93	87	Monterey	163,572	256	100%	330700	Carmel River	Y	163,572	256	404
3308	Santa Lucia	Big Sur- Little Sur	Y	193,558	302	442	81	67	75	70	Monterey	193,558	302	100%	330800	Santa Lucia	Y	193,558	302	442
3309	Salinas	Salinas River	Y	2,257,107	3,527	4,727	375	122	147	327	Fresno Monterey San Benito San Luis Obispo	433 1,570,280 149,820 536,574	1 2,453 234 838	0% 70% 7% 24%	330911 330912 330920 330930 330940 330950 330960 330970 330981 330982 330983 330990	Neponset Moro Cajo Chualar Soledad Upper Salinas Valley Monterey Peninsula Arroyo Seco Cabillon Range Paso Robles Nacimiento Reservoir San Antonio Reservoir Pozo	Y N Y Y Y N Y Y Y N N N	73,127 10,673 68,155 93,914 88,662 76,184 284,532 544,467 957,132 5,626 5,431 47,205	114 17 106 147 139 122 445 851 1,496 9 8 74	149 17 134 119 105 103 591 1,303 2,042 35 26 102
3310	Espero Bay	Chorro-Morro Santa Rosa- Arroyo De La Cruz	Y	480,639	751	940	353	127	320	234	Monterey San Luis Obispo	12,980 467,659	20 727	3% 97%	331011 331012 331013 331014 331015 331016 331017 331018 331021 331022 331023 331024 331025 331026 331027 331031 331032	San Carpoforo Arroyo De La Cruz San Simeon Santa Rosa Villa Cayucos Old Toro Morro Chorro Los Osos San Luis Obispo Creek Point San Luis Pismo Morro Bay Oceano Nipomo Mesa	Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y N	29,315 27,773 51,384 33,192 13,849 11,624 15,346 9,941 18,141 29,911 17,939 55,553 27,595 25,354 2,100 97,871 13,749	46 43 80 52 22 18 24 16 28 47 28 87 43 40 3 153 21	64 65 129 82 29 29 29 29 35 61 31 98 51 49 Bay 175 0
3312	Santa Maria	Santa Maria River	N	93,637	146	88	0	0	0	0	Santa Barbara San Luis Obispo	69,873 23,764	109 37	75% 25%	331210**	Guadalupe	N	93,637	146	88
3317	Estrella	Estrella River- Cholame- San Juan Creek	N	610,690	954	1,227	0	0	0	0	Fresno Kern Kings	187 19 144	0 0 0	0% 0% 0%	331700	Estrella River	N	610,690	954	1,227





Table D2. Summary of Occupied Subbasins/Watersheds, PCE's and Management Activities Affecting PCE's for the South-central California Coast Steelhead ESU

Map Code	Basin	Watershed	Calwater Unit	Spawning/Rearing PCEs (mi)**	Rearing/Migration PCEs (mi)**	Presence/Migration Only PCEs (mi)**	Management Activities**
	Pajaro River	Watsonville	330510	42	58	56	FC, WI, NW
	Pajaro River	Santa Cruz Mountains	330520	25	29	29	WI, NW
	Pajaro River	South Santa Clara Valley	330530	42	85	85	FC, RB
	Pajaro River	Pacheco-Santa Ana Creek	330540	20	22	18	NH
	Pajaro River	San Benito River	330550	15	69	69	GM, WI
	Bolsa Nueva	Bolsa Nueva	330600				
	Carmel River	Carmel River	330700	93	93	86	NH, FC, NW, NW
	Santa Lucia	Santa Lucia	330800	75	76	70	RB
	Salinas	Neponset	330911	7	53	53	AG, FC, WL
	Salinas	Moro Cojo	330912				
	Salinas	Chualar	330920	1	8	6	
	Salinas	Soledad	330930	7	48	48	RB, WI
	Salinas	Upper Salinas Valley	330940	0	38	38	AG, WI
	Salinas	Monterey Peninsula	330950				
	Salinas	Arroyo Seco	330960	62	62	61	RB
	Salinas	Gabilan Range	330970	8	8	0	
	Salinas	Paso Robles	330981	63	121	121	H, NH, WI
	Salinas	Nacimiento Reservoir	330982				
	Salinas	San Antonio Reservoir	330983				
	Salinas	Pozo	330990				
	Estero Bay	San Carpoforo	331011	15	15	15	GM, CM,
	Estero Bay	Arroyo de la Cruz	331012	28	28	28	GR, WI
	Estero Bay	San Simeon	331013	58	57	52	WI, RB
	Estero Bay	Santa Rosa	331014	18	27	16	GR, RB
	Estero Bay	Villa	331015	27	27	27	GR, AG

Estero Bay	Cayucos	331016	15	15	15	GR, AG
Estero Bay	Old	331017	1	1	0	NH
Estero Bay	Toro	331018	12	12	0	AG, GR
Estero Bay	Morro	331021	25	25	25	GR, AG, WI,
Estero Bay	Chorro	331022	30	31	20	NH, RB
Estero Bay	Los Osos	331023	9	7	0	GR, AG
Estero Bay	San Luis Obispo Creek	331024	39	39	6	UR, CM, GR
Estero Bay	Point San Luis	331025	22	21	14	
Estero Bay	Pismo	331026	12	14	8	NH, GR, WI
Estero Bay	Morro Bay	331027				
Estero Bay	Oceano	331031	15	24	8	NH, AG
Estero Bay	Nipomo Mesa	331032				
Santa Maria	Guadalupe	331210				
Estrella	Estrella River	331700				

\*Total Stream Miles calculated from blue line streams represented on 1:100,000 USGS Topographic Maps

\*\*Overlap of stream miles may occur between the three habitat types.

\*\*\*Management Activities Codes:

AG - Agriculture  
CM - Channel Modification  
ES - Exotic / Invasive Species  
FC - Flood Control Channel  
FR - Forestry  
GM - Sand and Gravel Mining

GR - Grazing  
HD - Hydroelectric Dam  
NH - Non-hydro Dam  
NW - Non-agriculture Withdrawals / Impoundments  
PO - Poaching  
RB - Road Building / Maintenance

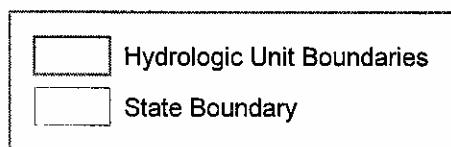
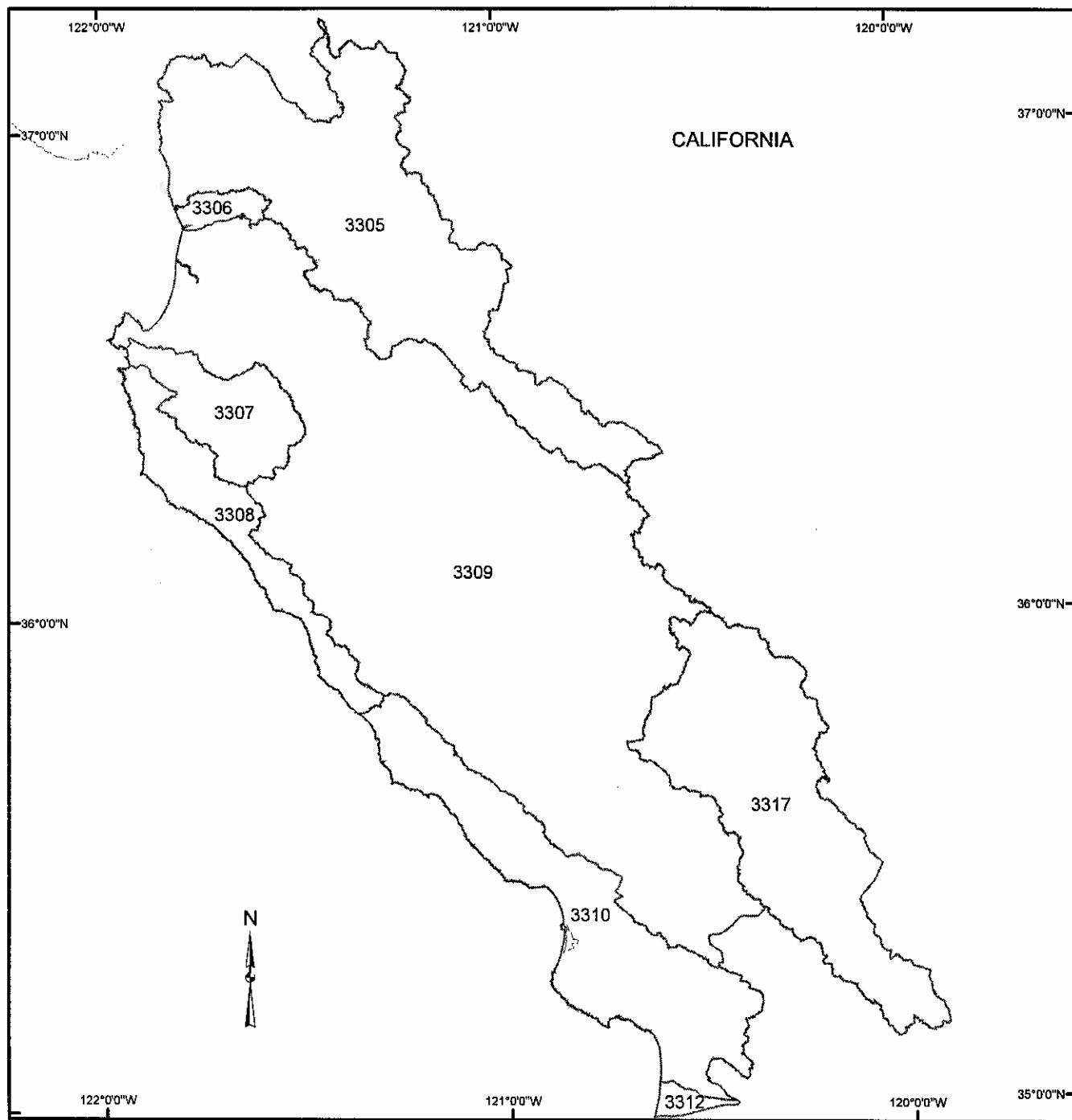
SP - Septic System Failure / Containment  
TR - River, Estuary, Ocean Traffic  
UR - Urbanization  
WI - Agriculture Withdrawals / Impoundments  
WL - Wetland Loss / Removal

Table D3. Summary of Scores and Overall Rankings of Conservation Values for Critical Habitat for HSA watersheds occupied by the South-central California Coast Steelhead ESU

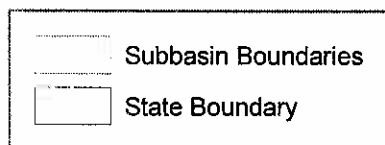
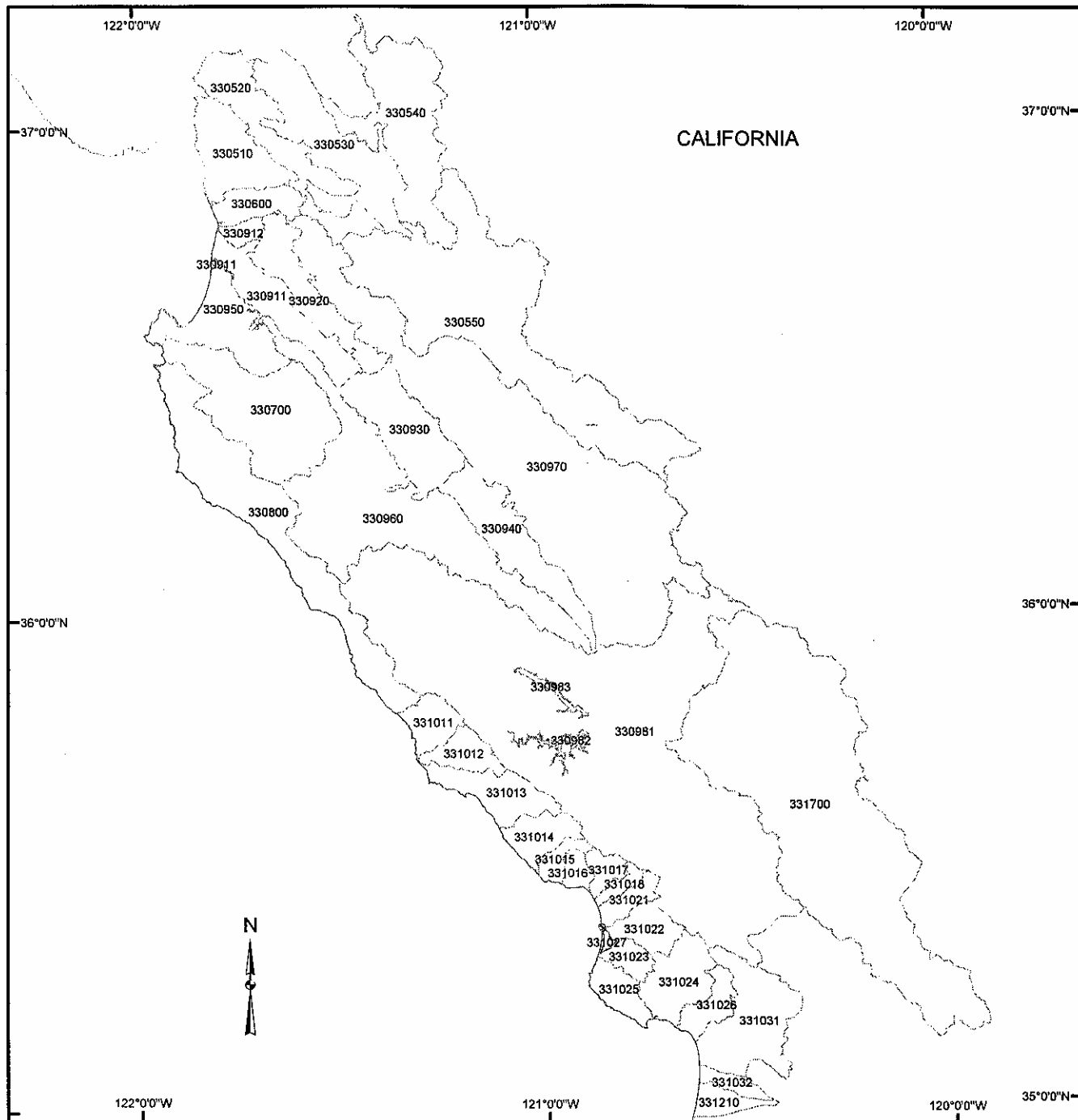
Map Code	Basin	Watershed	Calwater Unit	Total Score (0-18)	Comments / Other Considerations	Conservation Value
	Pajaro	Watsonville	330510	11		High
	Pajaro	Santa Cruz Mountains	330520	11		High
	Pajaro	South Santa Clara Valley	330530	10		Medium
	Pajaro	Pachecho-Santa Ana Creek	330540	10		Medium
	Pajaro	San Benito River	330550	10		Medium
	Bolsa Neuva	Bolsa Neuva	330600			NA
	Carmel River	Carmel River	330700	11		High
	Santa Lucia	Santa Lucia	330800	11		High
	Salinas	Neponset	330911	7		Low
	Salinas	Moro Cojo	330912			NA
	Salinas	Chualar	330920	5		Low
	Salinas	Soledad	330930	7		Low
	Salinas	Upper Salinas Valley	330940	7		Low
	Salinas	Monterey Peninsula	330950			NA
	Salinas	Arroyo Seco	330960	13		High
	Salinas	Gabilan Range	330970	9		Medium
	Salinas	Paso Robles	330981	14		High
	Salinas	Nacimiento Reservoir	330982			NA
	Salinas	San Antonio Reservoir	330983			NA
	Salinas	Pozo	330990			NA
	Estero Bay	San Carpoforo	331011	8		Medium
	Estero Bay	Arroyo de la Cruz	331012	10		Medium
	Estero Bay	San Simeon	331013	11		High
	Estero Bay	Santa Rosa	331014	12		High
	Estero Bay	Villa	331015	7		Low
	Estero Bay	Cayucos	331016	7		Low
	Estero Bay	Old	331017	10		Medium
	Estero Bay	Toro	331018	10		High
	Estero Bay	Morro	331021	11		High
	Estero Bay	Chorro	331022	12		High
	Estero Bay	Los Osos	331023	9		Medium
	Estero Bay	San Luis Obispo Creek	331024	11		High
	Estero Bay	Point San Luis	331025	9		Medium
	Estero Bay	Pismo	331026	9		Medium
	Estero Bay	Morro Bay	331027			NA
	Estero Bay	Oceano	331031	8		Medium
	Estero Bay	Nipomo Mesa	331032			NA
	Santa Maria	Guadalupe	331210			NA
	Estrella	Estrella River	331700			NA

Figures D1 and D1 - CALWATER Hydrologic Units and Hydrologic Subareas within the Range of the South-Central California Coast Steelhead ESU

## Map of the South-central California Coast Steelhead ESU



# Map of the South-central California Coast Steelhead ESU



Maps D1 through D6: South-Central California Coast Steelhead ESU - Habitat Areas  
Considered for Critical Habitat Designation

D1 - Unit 3305 (Pajaro River HU)

D2 - Unit 3306 (Bolsa Neuva HU)

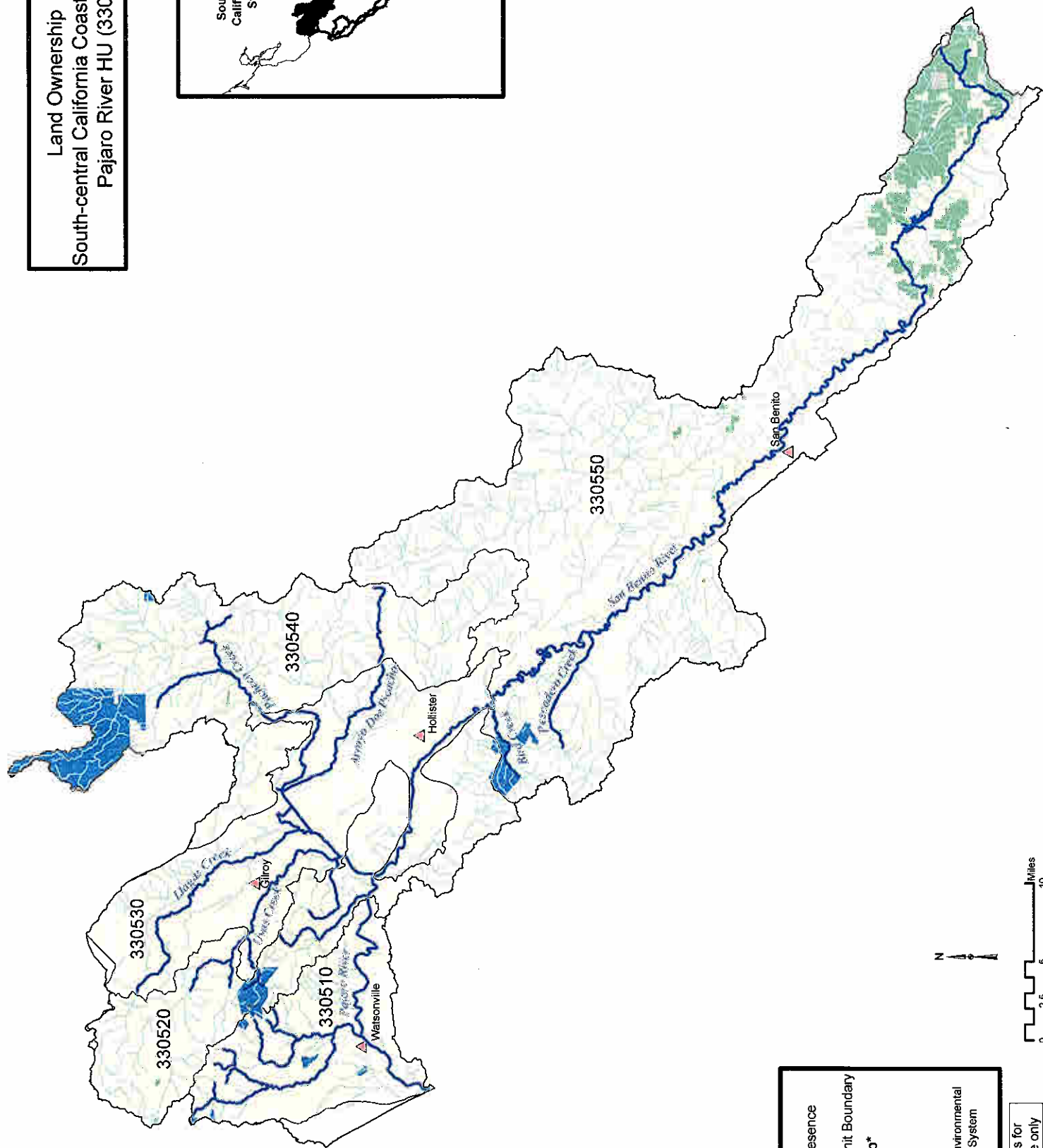
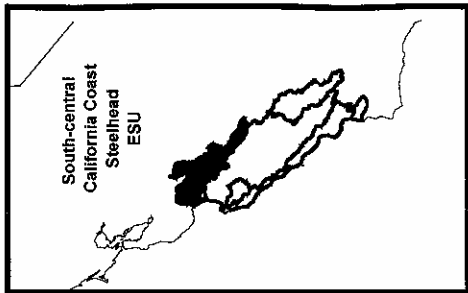
D3 - Unit 3307 (Carmel River HU)

D4 - Unit 3308 (Santa Lucia HU)

D5 - Unit 3309 (Salinas HU)

D6 - Unit 3310 (Estero Bay HU)

# Land Ownership South-central California Coast Steelhead Pajaro River HU (3305)



**Legend**

- △ Cities
- Steelhead Presence
- Streams
- Hydrologic Unit Boundary
- Land Ownership\***
  - Federal
  - State/Local
  - Private/Other
  - Water

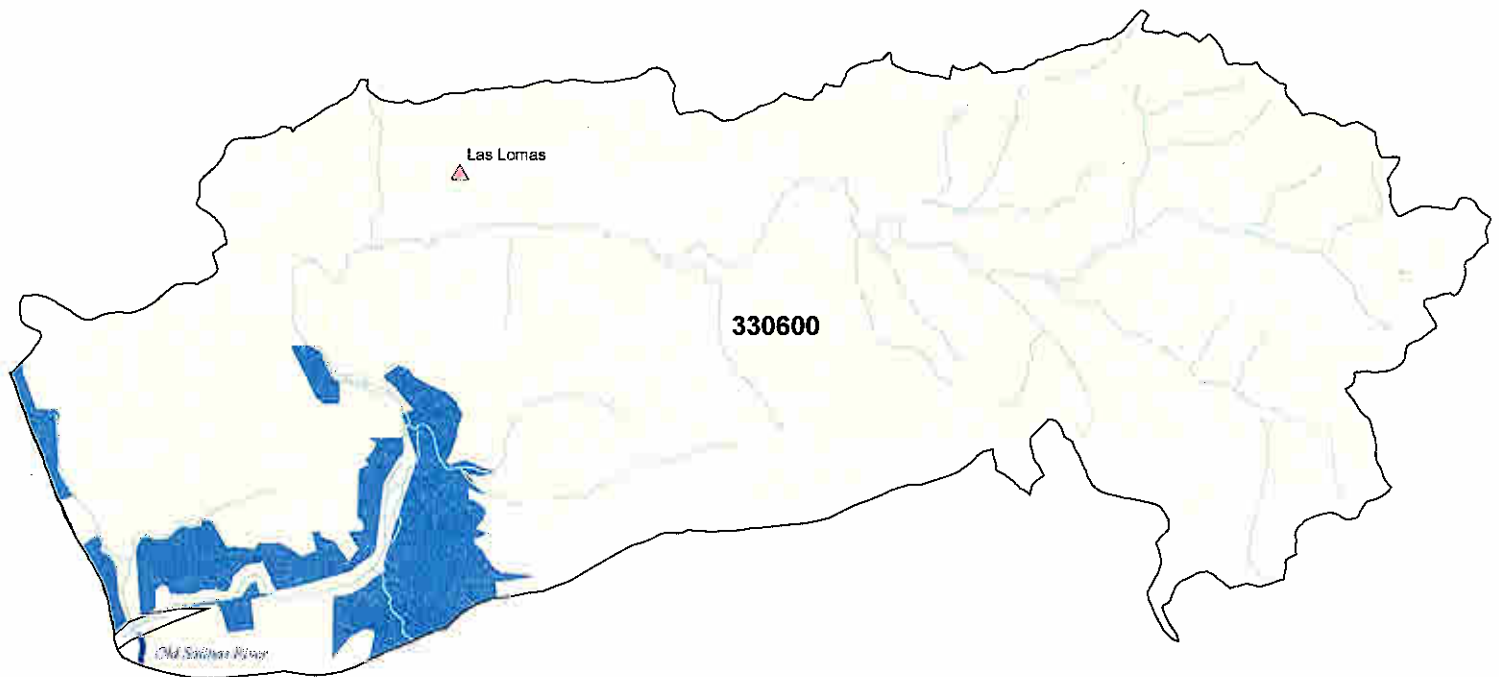
\*Source: California Environmental Resources Evaluation System (CERES), 1999



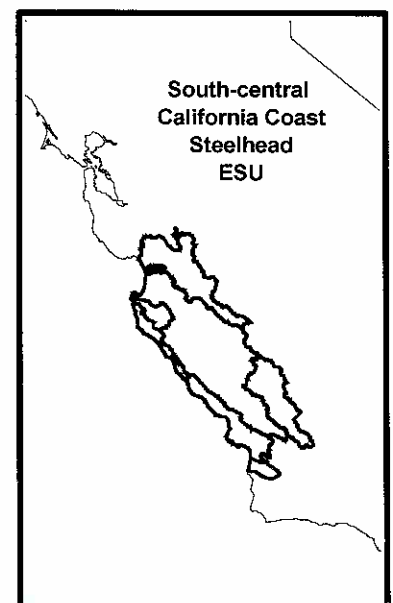
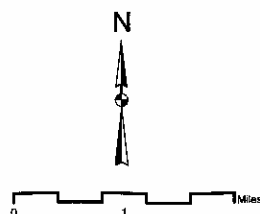
Note: This map is for general reference only



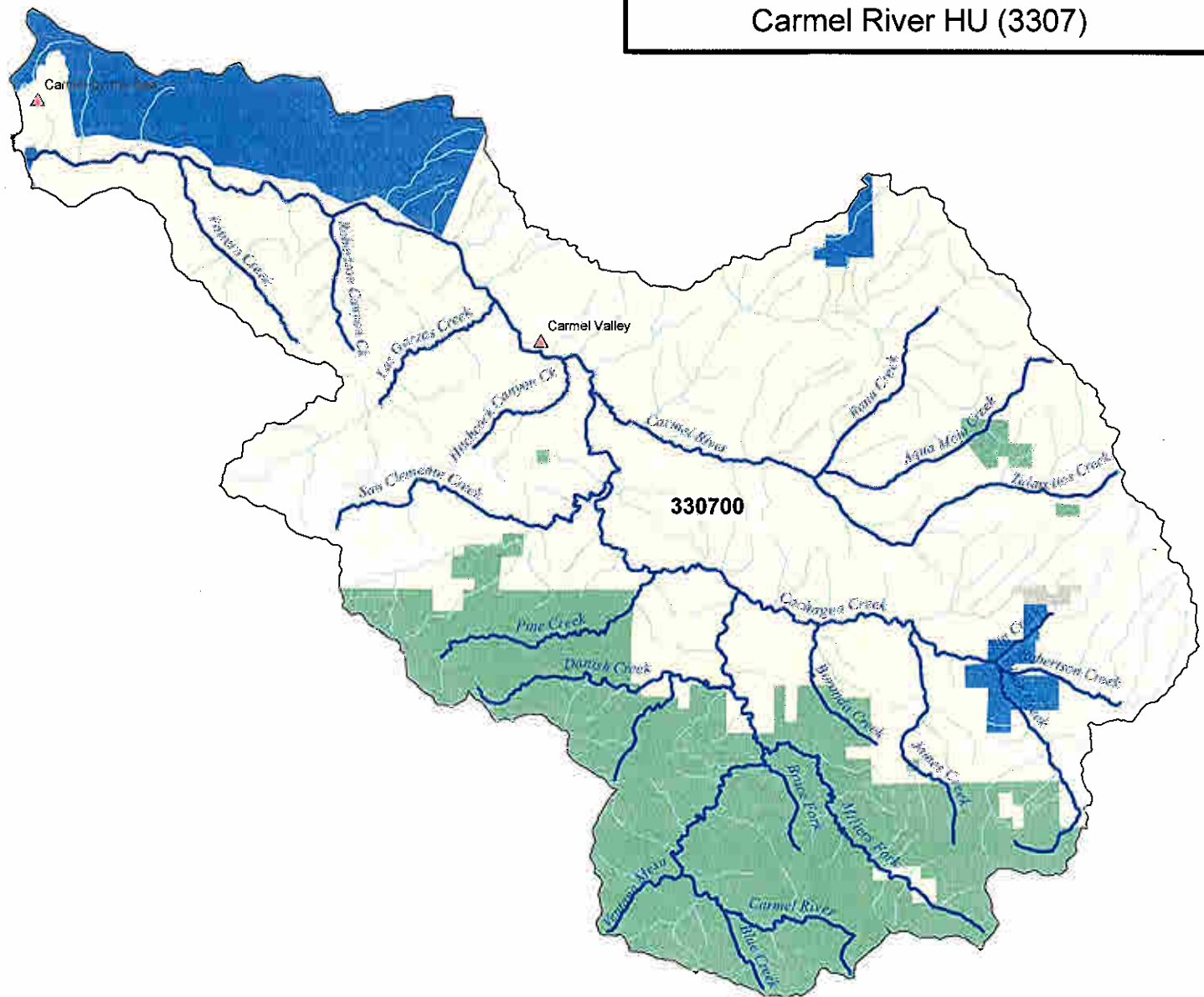
Land Ownership  
South-central California Coast Steelhead  
Bolsa Neuva HU (3306)



Note: This map is for general reference only



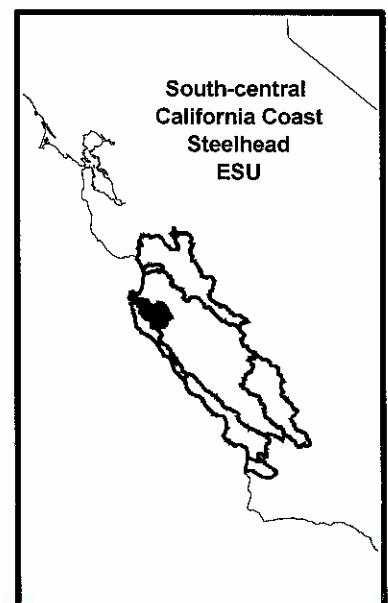
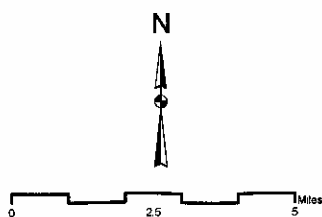
Land Ownership  
South-central California Coast Steelhead  
Carmel River HU (3307)



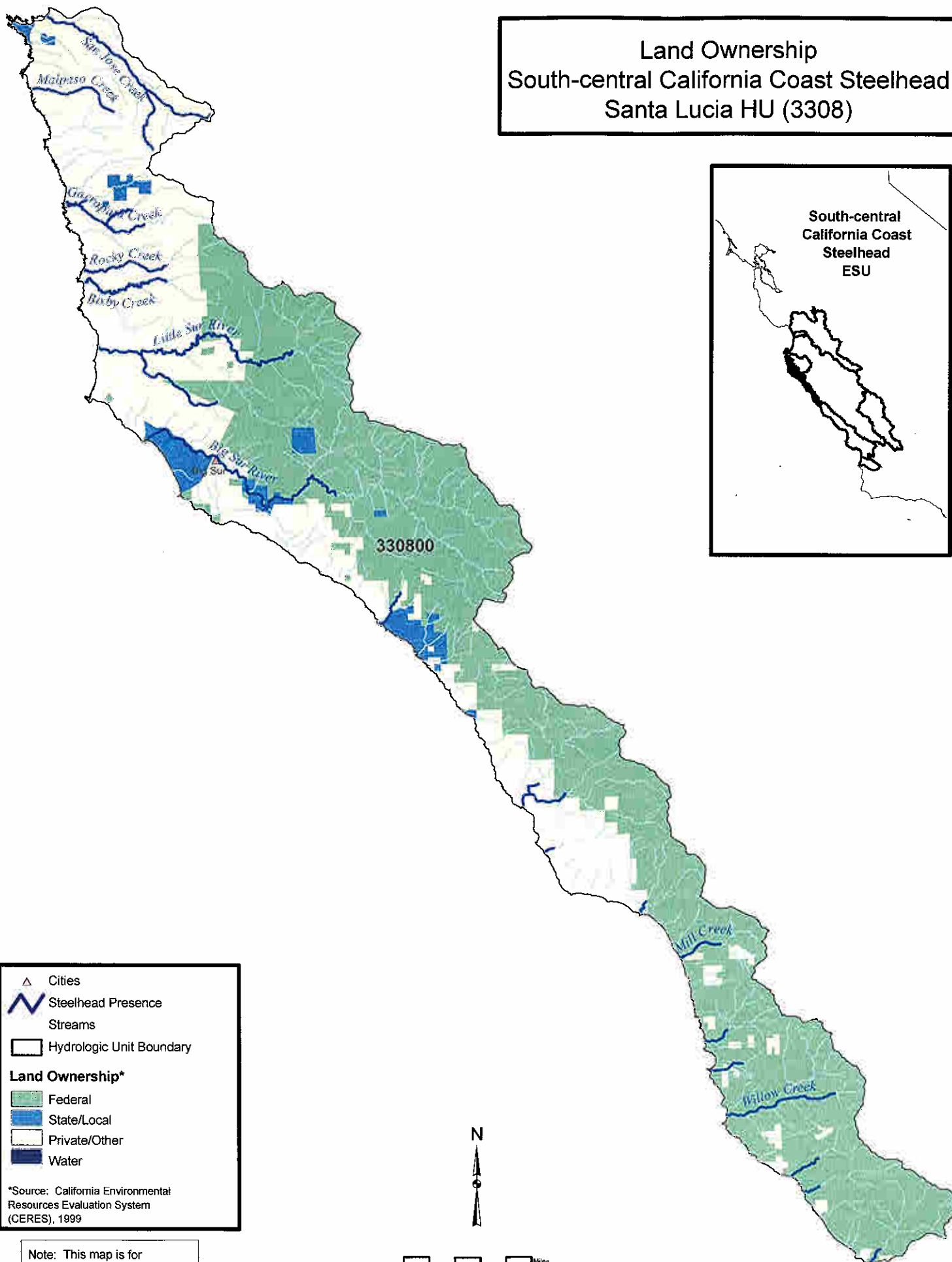
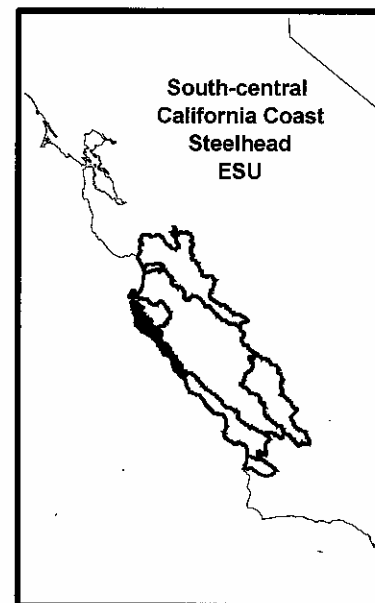
-  Cities  
 Steelhead Presence  
 Streams  
 Hydrologic Unit Boundary  
**Land Ownership\***  
 Federal  
 State/Local  
 Private/Other  
 Water

\*Source: California Environmental Resources Evaluation System (CERES), 1999

Note: This map is for general reference only



# Land Ownership South-central California Coast Steelhead Santa Lucia HU (3308)



△ Cities

Steelhead Presence

Streams

Hydrologic Unit Boundary

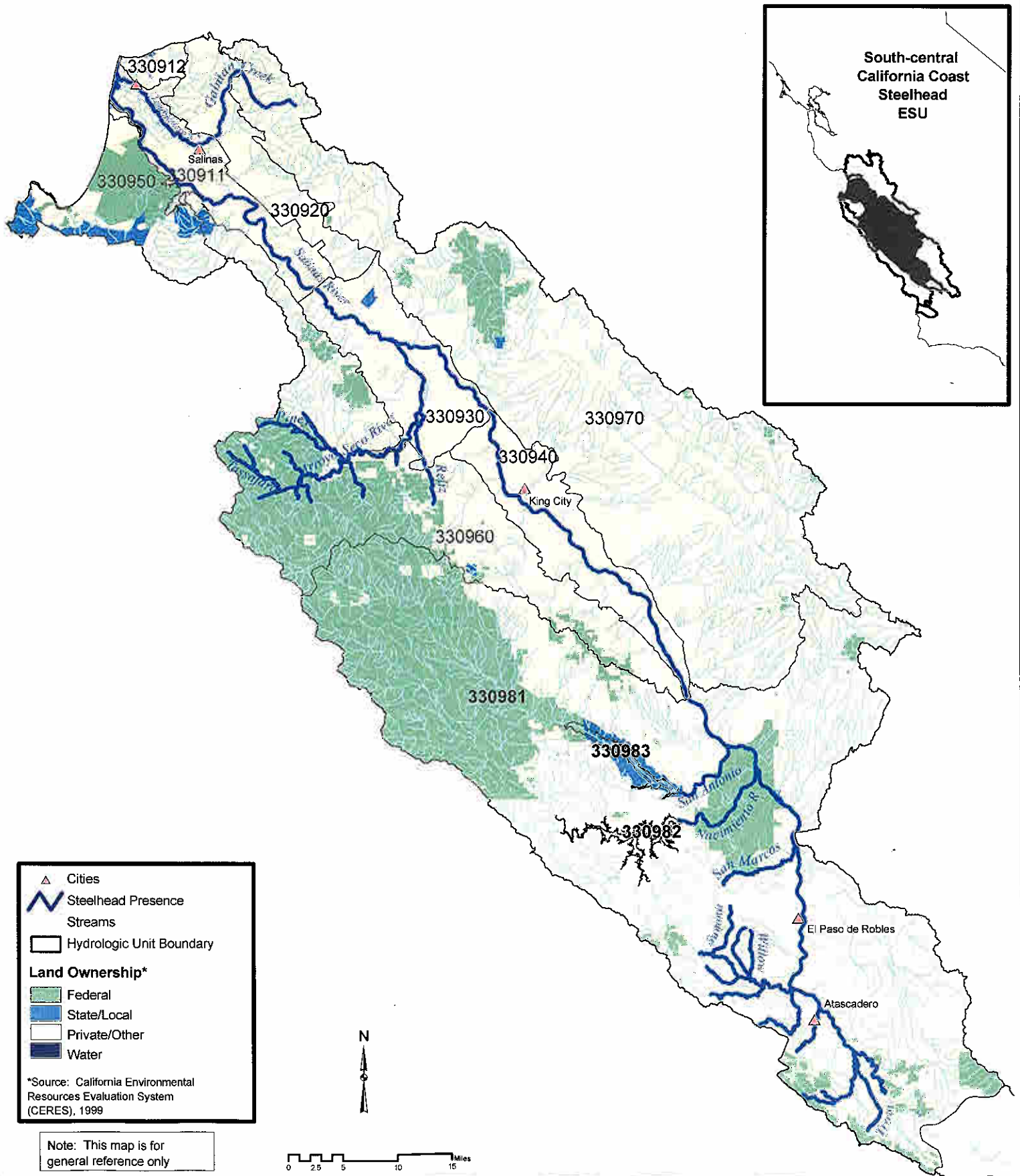
**Land Ownership\***

- Federal
- State/Local
- Private/Other
- Water

\*Source: California Environmental Resources Evaluation System (CERES), 1999

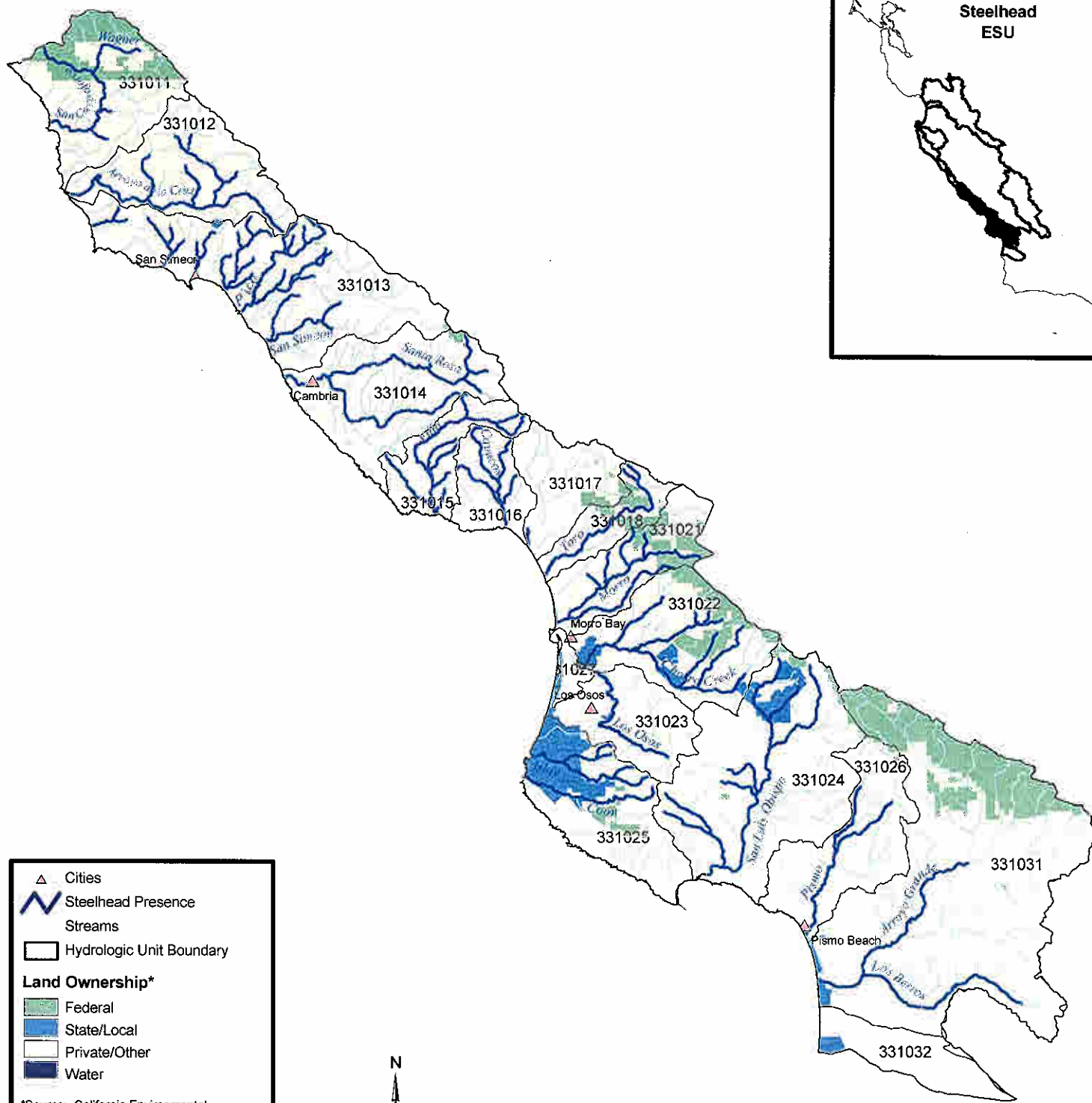
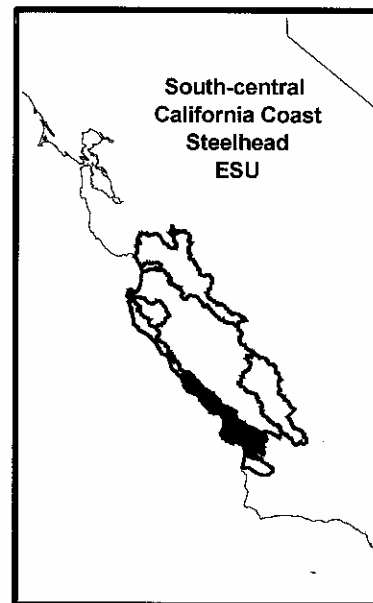
Note: This map is for general reference only

Land Ownership  
South-central California Coast Steelhead  
Salinas River HU (3309)





# Land Ownership South-central California Coast Steelhead Estero Bay HU (3310)



- △ Cities
- Steelhead Presence
- Streams
- Hydrologic Unit Boundary
- Land Ownership\***
- Federal
- State/Local
- Private/Other
- Water

\*Source: California Environmental Resources Evaluation System (CERES), 1999

Note: This map is for general reference only

0 2.5 5 10 Miles

Map D7. Final CHART Ratings of Conservation Value for CALWATER HSA  
Watersheds occupied by the South-Central California Coast Steelhead ESU

## South-central California Coast Steelhead Watershed Conservation Rating

Map of the fifth- field watersheds occupied by the South-central California Coast Steelhead Evolutionarily Significant Unit (ESU) and eligible for designation as critical habitat.

